SUPPORT FOR THE AMENDMENTS

Claims 1-11 and 13-23 are amended to use wording and structure consistent with U.S. patent law practice.

Claims 8, 9 and 10 are amended to include the description of Claim 12.

Claim 12 is canceled.

Support for new Claims 24-27 is found in Claims 8-10.

No new matter is added to this application by entry of this amendment.

Upon entry of this amendment, Claims 1-11 and 13-27 are active.

REMARKS/ARGUMENTS

The claimed invention provides a gas-barrier laminate, comprising: a plastic substrate; an inorganic thin film formed on at least one surface of the plastic substrate; and a coating layer on a surface of the inorganic thin film; wherein the coating layer comprises a polyester resin having a molecular weight of 3000 to 15000, and a polyurethane resin having a molecular weight of 8000 to 30000, a weight ratio of the polyester resin to the polyurethane resin is from 5/95 to 95/5, and an oxygen permeability of the gas-barrier laminate is not more than 25 fmol/m^2/s/Pa.

In another embodiment, the claimed invention provides a gas-barrier laminate, comprising: a plastic substrate; an inorganic thin film on at least one surface of the plastic substrate; and a coating layer on a surface of the inorganic thin film; wherein the coating layer comprises at least one resin selected from the group consisting of a polyester resin, an urethane resin, an acrylic resin, an alkoxysilyl group-containing resin, an oxazoline group-containing resin and copolymer resins thereof, a hardness of the coating layer is from 0.1 to 0.5 GPa as measured at 23° C. in atmospheric air by a nano-indentation hardness testing method, and when the gas-barrier laminate is further laminated on the coating layer with an

unstretched polypropylene film having a thickness of 60μm and the further obtained laminate subjected to a hydrothermal treatment at 120° C. for 30 min, an oxygen permeability of the further laminate is not more than 50 fmol/m^2/s/Pa.

In a further embodiment, the claimed invention provides a gas-barrier laminate, comprising a plastic substrate; an inorganic thin film on at least one surface of the plastic substrate; and a coating layer on a surface of the inorganic thin film; wherein

the coating layer is made of at least one resin selected from the group consisting of a polyester resin, an urethane resin, an acrylic resin, an alkoxysilyl group-containing resin, an oxazoline group-containing resin and copolymer resins thereof, a ratio of number of carbon atoms derived from carboxyl groups to number of carbon atoms constituting the surface of the coating layer is from 0.005 to 0.1, and

when the gas-barrier laminate is further laminated on the coating layer with an unstretched polypropylene film having a thickness of 60μm and the further obtained laminate subjected to a hydrothermal treatment at 120° C. for 30 min, an oxygen permeability of the further laminate is not more than 50 fmol/m^2/s/Pa.

No such gas-barrier laminates are disclosed or suggested in the cited references.

The rejection of Claims 8-12, 14-17 and 21-22 under 35 U.S.C. 102(b) over Ota et al. (U.S. 6,866,949) is respectfully traversed.

Ota describes a gas-barrier laminate of a substrate with specific thermal and moisture retention properties, a thin metal oxide layer (Abstract) and an overcoat layer made of a polysiloxane (Col. 3, lines 29-36) or a polysilazane (Col. 16, lines 7-10). Ota further describes that other resins may be used (Col. 15, lines 58-63). However, nowhere does this reference disclose or suggest: 1) a coating layer comprising at least one resin selected from the group consisting of a polyester resin, an urethane resin, an acrylic resin, an alkoxysilyl group-containing resin, an oxazoline group-containing resin and copolymer resins thereof,

having a hardness of 0.1 to 0.5 GPa as measured at 23° C. in atmospheric air by a nano-indentation hardness testing method; or 2) a coating layer comprising at least one resin selected from the group consisting of a polyester resin, an urethane resin, an acrylic resin, an alkoxysilyl group-containing resin, an oxazoline group-containing resin and copolymer resins thereof, having a ratio of number of carbon atoms derived from carboxyl groups to number of carbon atoms constituting the surface of the coating layer of from 0.005 to 0.1, as according to the claimed invention.

Applicants have described the significance of 1) and 2) in the specification as follows:

> When the hardness of the coating layer (C) as measured at 23.degree. C. in atmospheric air by a nano-indentation hardness testing method is too high, the coating layer may fail to follow the dimensional change of the laminate as a whole when subjected to hydrothermal treatment, resulting in deteriorated barrier property thereof after the hydrothermal treatments. When the hardness of the coating layer (C) as measured at 23.degree. C. in atmospheric air by a nano-indentation hardness testing method is too low, the gradation of printing tends to be lowered. (Page 26, lines 8-17)
>
> When the hardness of the coating layer (C) as measured at 23.degree. C. in water by a nano-indentation hardness testing method is too high, the coating layer may fail to follow the dimensional change of the laminate as a whole when subjected to hydrothermal treatment, resulting in deteriorated barrier property thereof after the hydrothermal treatment. When the hardness of the coating layer (C) as measured at 23.degree. C. in water by a nano-indentation hardness testing method is too low, the adhesion between the respective layers tends to be deteriorated when subjected to the hydrothermal treatment. (Page 26, lines 18-27)
>
> When the ratio of number of carbon atoms derived from carboxyl groups to number of carbon atoms constituting the surface of the coating layer (C) is too small, the adhesion strength between the respective layers in water tends to be lowered. When the ratio of number of carbon atoms derived from carboxyl groups to number of carbon atoms constituting the surface of the coating layer (C) is too large, the coating solution prepared for forming the coating layer (C) tends to readily suffer from hydrolysis, resulting in unstable properties of the obtained coating layer (C). (Page 27, lines 9-18)

Nowhere does Ota provide such disclosure or motivation that would have led one of ordinary skill in the art to the above described elements at the time of the present invention. Applicants note that the Office alleges that such properties would be inherent to the Ota description (Official Action dated March 30, 2010, page 3, paragraph 4) and respectfully call the Office's attention to the following:

> To establish inherency, the extrinsic evidence 'must make clear that **the missing descriptive matter is necessarily present** in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. **The mere fact that a certain thing may result from a given set of circumstances is not sufficient.**' (*In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)(citations omitted)(Bold added for emphasis)

Applicants submit that as described above, Ota is silent relative to elements 1) and 2) above and therefore these elements cannot be necessarily present. Applicants respectfully submit that a proper finding of anticipation requires that "[e]very element of the claimed invention ... be literally present, arranged as in the claim. *Perkin-Elmer Corp.*, 732 F.2d at 894, 221 USPQ at 673; *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 771-72, 218 USPQ 781, 789 (Fed. Cir. 1983), *cert. denied*, 465 U.S. 1026 [224 USPQ 520] (1984). The identical invention must be described in as complete detail in the reference as is described in the claimed invention. Accordingly, as described above, the cited reference does not disclose or suggest every element of the claimed invention and therefore, cannot anticipate or render the claimed invention obvious. Applicants respectfully request that the rejection of Claims 8-12, 14-17 and 21-22 under 35 U.S.C. 102(b) over Ota be withdrawn.

The rejection of Claims 8-23 under 35 U.S.C. 102(b) over Matsuda et al. (U.S. 5,856,017) is respectfully traversed.

Applicants respectfully note that Claims 14-23 all depend directly or indirectly from Claim 1. The Office acknowledges that this reference does not disclose all the elements of Claim 1 (Official Action dated March 30, 2010, page 5, paragraph 7). Therefore, the rejection of Claims 14-23 must be improper and their inclusion in this rejection erroneous.

Matsuda describes a gas barrier film including a plastic film and a thin oxide film on the plastic film (Abstract). Other organic polymer films which may be coated on the thin film are unoriented polypropylene, polyethylene and a successive combination of nylon and polyethylene (Col. 8, lines 27-40).

Nowhere does this reference disclose or suggest a coating layer comprising at least one resin selected from the group consisting of a polyester resin, an urethane resin, an acrylic resin, an alkoxysilyl group-containing resin, an oxazoline group-containing resin and copolymer resins thereof, as according to the present invention. Moreover, nowhere does Matsuda disclose or suggest the hardness values of the coating layer recited in Claims 8 and 9 or the carbon ratio recited in Claim 10.

In view of all the above, Applicants submit that the cited reference neither discloses nor suggests all the claimed elements and therefore, can not anticipate or render the present invention obvious. Accordingly, Applicants respectfully request that the rejection of Claims 8-23 under 35 U.S.C. 102(b) over Matsuda be withdrawn.

The rejection of Claims 1-4 and 6-7 under 35 U.S.C. 103(a) over Ota or Matsuda and further in view of Satoh et al. (U.S. 6,194,061) is respectfully traversed.

The failure of both cited primary references to anticipate or render Claims 8-13 obvious is described above.

The Office acknowledges that neither primary reference describes an **overcoat layer** containing a polyester resin and a polyurethane resin (Official Action dated March 30, 2010, page 5, paragraph 7) and cites Satoh as allegedly showing such an element.

Satoh describes a thermoplastic laminate film containing a thermoplastic substrate film and a layer formed from a resin composition of a polyester graft copolymer and a resin (B) being one of a polyurethane , an acrylic or a vinyl resin. This resin layer is an adhesion improving layer which is coated on the substrate film (Abstract) and therefore is not an overcoat.

Satoh specifically distinguishes the polyester graft copolymer as a water dispersible resin having different properties from the hydrophobic polyester resin serving as the graft base and therefore also different from the polyester resin of the claimed invention.

Applicants respectfully call the Examiner's attention to the following excerpt from the Office's own discussion of **"Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in *KSR International Co. v. Teleflex Inc.*"**

> "The rationale to support a conclusion that the claim would have been obvious is that **all the claimed elements were known in the prior art** and one skilled in the art could have combined the elements as claimed by known methods **with no change in their respective functions,** and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art at the time of the invention.[43] ""[I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does."[44] **If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious to one of ordinary skill in the art,"** (Federal Register, Vol. 72, No. 195, page 57529) **(Bold added)**

Accordingly, Applicants submit that Satoh describes an adhesive layer **directly on the substrate** and containing a **graft polyester copolymer having hydrophilic graft chains** for improved adhesive and water dispersion properties. The secondary reference does not make an **overcoat layer** containing a polyester resin having a molecular weight of 3000 to 15000, and a polyurethane resin having a molecular weight of 8000 to 30000 known.

Moreover, as the graft polyester copolymer is water dispersible, Applicants submit that it would be unsuitable as an overcoat component according to the present invention.

In view of all the above, Applicants submit that the cited combination of references does not disclose or suggest all the elements of the present invention and therefore, cannot render the invention obvious. Accordingly, Applicants respectfully request that the rejection of Claims 1-4 and 6-7 under 35 U.S.C. 103(a) over Ota or Matsuda and further in view of Satoh be withdrawn.

The rejection of Claim 5 under 35 U.S.C. 103(a) over Ota or Matsuda and further in view of Satoh and further in view of Hall et al. (U.S. 2002/0009564) is respectfully traversed.

Claim 5 depends directly from Claim 1 and includes all the description of the independent claim. The failure of the primary reference combination to render Claim 1 obvious is described above. Hall is cited to show a fatty acid or derivative thereof (Official Action dated March 30, 2010, page 7, first paragraph) and does not cure the deficiencies previously described for the primary references. Therefore, Applicants submit that the cited combination of references cannot render Claim 5 obvious and respectfully request that the rejection of Claim 5 under 35 U.S.C. 103(a) over Ota or Matsuda and further in view of Satoh and further in view of Hall be withdrawn.

The provisional rejection of Claims 1-23 on the ground of nonstatutory obviousness-type double patenting over Claims 1-5, 7, 9 and 12-28 of copending Application No. 10/563,299 is respectfully traversed.

The copending application does not disclose or suggest any of the following elements:

a) a coating layer on a surface of the inorganic thin film; wherein the coating layer comprises a polyester resin having a molecular weight of 3000 to 15000, and a polyurethane resin having a molecular weight of 8000 to 30000, a weight ratio of the polyester resin to the polyurethane resin is from 5/95 to 95/5;

b) a coating layer on a surface of the inorganic thin film; wherein the coating layer comprises at least one resin selected from the group consisting of a polyester resin, an urethane resin, an acrylic resin, an alkoxysilyl group-containing resin, an oxazoline group-containing resin and copolymer resins thereof, a hardness of the coating layer is from 0.1 to 0.5 GPa as measured at 23° C. in atmospheric air by a nano-indentation hardness testing method;

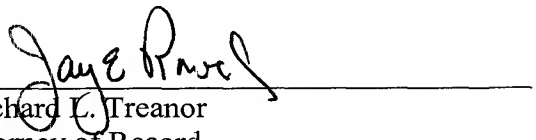
c) the coating layer is made of at least one resin selected from the group consisting of a polyester resin, an urethane resin, an acrylic resin, an alkoxysilyl group-containing resin, an oxazoline group-containing resin and copolymer resins thereof, a ratio of number of carbon atoms derived from carboxyl groups to number of carbon atoms constituting the surface of the coating layer is from 0.005 to 0.1.

Accordingly, Applicants submit that the copending application does not make all the elements of the claimed invention known and cannot render the claimed invention obvious. Applicants respectfully request that the provisional rejection of Claims 1-23 on the ground of nonstatutory obviousness-type double patenting over Claims 1-5, 7, 9 and 12-28 of copending Application No. 10/563,299 be withdrawn.

Applicants respectfully submit that the above-identified application is now in condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, L.L.P.



Richard L. Treanor
Attorney of Record
Registration No. 36,379

Jay E. Rowe, Jr., Ph.D.
Registration No. 58,948

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 07/09)